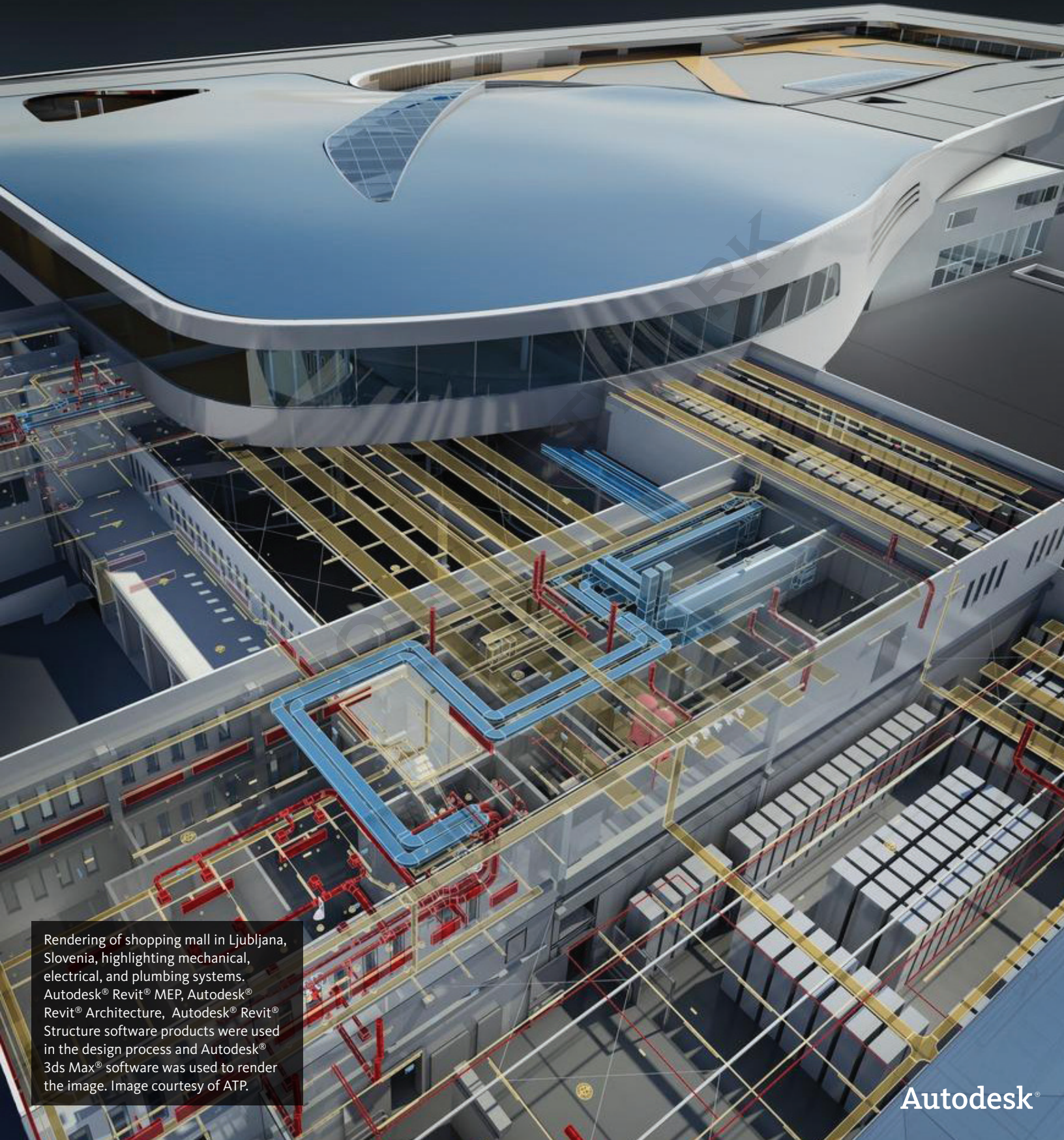


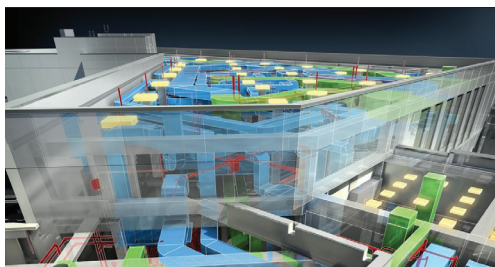
Design, visualize, simulate, document, and build. MEP Engineering Solutions for Building Systems



Rendering of shopping mall in Ljubljana, Slovenia, highlighting mechanical, electrical, and plumbing systems. Autodesk® Revit® MEP, Autodesk® Revit® Architecture, Autodesk® Revit® Structure software products were used in the design process and Autodesk® 3ds Max® software was used to render the image. Image courtesy of ATP.

Design and Document First-Rate Building Systems

Keep design data more accurate and coordinated, minimize errors, and enhance collaboration with Autodesk software for MEP projects.



BIM helps us understand how our systems fit within the building. Its holistic approach toward design enables the mechanical, electrical, and plumbing team to be involved from the beginning of the process and helps us impact early design decisions such as orientation, massing, and fenestration—features that have a huge impact on the building's mechanical and electrical systems design and ultimately its performance.

—Jay Rohkohl
Executive Vice President
Dunham Associates

What if you could?

- Be more competitive
- Control costs and do more with less
- Compete for projects that feature BIM workflows, but use CAD
- Collaborate more effectively with project team members
- Coordinate design data in different file formats
- Gain a competitive edge with high-end visualizations and walkthroughs
- Improve constructability and reduce rework costs

Image courtesy of Dunham, Perkins+Will, MJB & St. Cloud Hospital.

Industry Challenges Bring Opportunities

Mechanical, electrical, and plumbing (MEP) engineers are facing unprecedented challenges in today's building industry. National and global economic pressures are forging an increasingly competitive environment. Current business models are under pressure as contractual structures evolve. The industry is moving from traditional design, bid, build delivery methods to new approaches such as integrated project delivery (IPD)—changing the nature of project collaboration and demanding tighter coordination and cooperation across extended teams. These shifting contractual structures and the continuing evolution of business relationships is a challenge MEP firms must embrace to win more work.

Firms are also challenged by the increasing demand for sustainable design and clients' expectations for green compliance. Sustainable design has moved from "desired" to "required" as more green mandates emerge, placing increased pressure on engineers to meet and exceed targets set by project stakeholders. Job site challenges due to lack of skilled labor, increased owner demands for cost cutting, safety concerns during construction, and demand for prefabrication are on the rise as well.

Engineering firms today must find ways to cut project costs and do more with less. Saddled with intense competition and already-thin profit margins, firms need key differentiators that can win them new business.

BIM for MEP Engineering

With engineering firms reevaluating how to win new work, there has never been a better time for you to promote yourselves as a BIM-ready firm. The transition from computer-aided design (CAD) to Building Information Modeling (BIM) has shifted design practices in the architecture, engineering, and construction (AEC) industry. Many architectural and engineering firms have already recognized the benefits of BIM and adopted BIM workflows and solutions. Owners, contractors, and fabricators are also realizing the value that BIM creates. In fact, half of owners¹ in the U.S. report that better overall project outcomes are a significant benefit of BIM.

BIM awareness and adoption is increasing around the world. In recent surveys, more than one-third of Western European² and almost half of North American³ industry participants reported the adoption of BIM. As MEP engineers become keenly aware of BIM benefits, it is expected that adoption will increase steadily over the next few years.

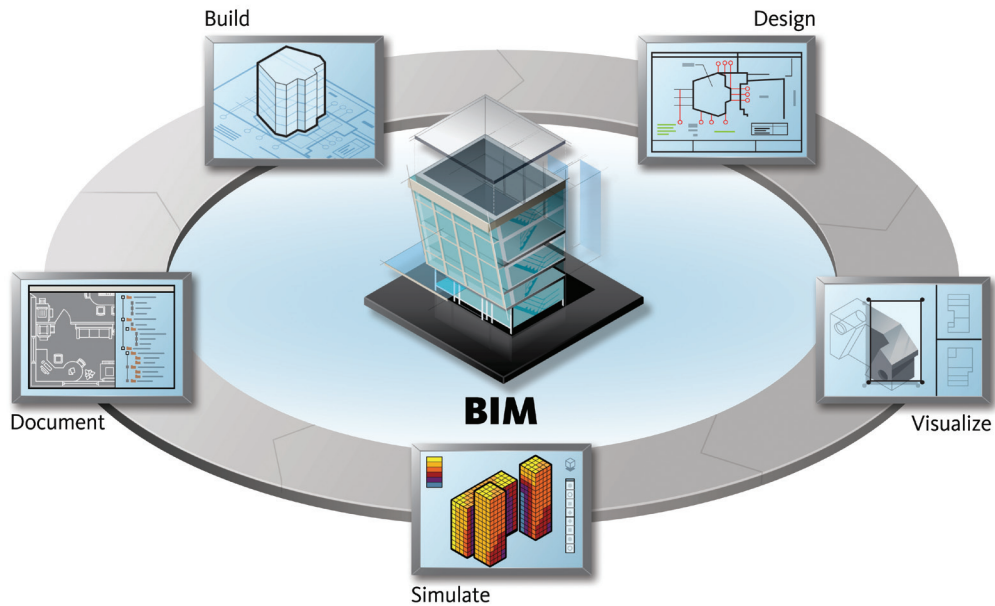
Autodesk MEP Engineering Software

To help MEP engineers take advantage of the rich information in intelligent models and support an end-to-end BIM process, you can license to a comprehensive portfolio of software and cloud-based services. These offerings support BIM, analysis, and AutoCAD®-based workflows across the entire MEP engineering workflow. Autodesk's comprehensive portfolio of software helps MEP engineers to design, visualize, simulate, analyze, document, and build complex building systems using both BIM and CAD-based workflows.

¹McGraw Hill Construction Business Value of BIM SmartMarket Report 2009

²McGraw Hill Construction Business Value of BIM in Europe SmartMarket Report 2010

³McGraw Hill Construction Business Value of BIM SmartMarket Report 2009



Create Better Buildings Using Intelligent Model-Based Workflows

At the heart of the Autodesk® BIM process for MEP engineers are intelligent, information-rich models that can be used to gain insight through design, analysis, and documentation, and can be extended into the fabrication and construction processes.

Using these offerings, you can design even the most complex building systems with greater accuracy and efficiency. BIM design models enable the simulation of building systems and facilitate early energy analyses to improve your decision making and support engineering-driven calculations. Design changes are propagated throughout the BIM model, helping to increase the quality of your project and documentation. Coordinated, consistent 3D models, design visualizations, and walk-throughs improve your ability to communicate design intent.

Gain Project Insight

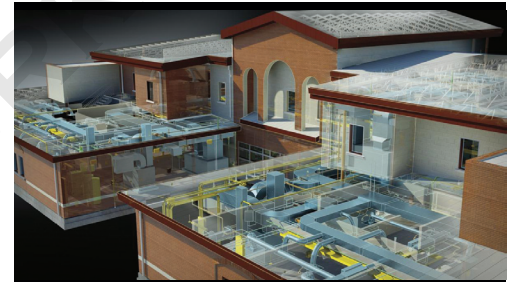
With integrated design, analysis, and documentation tools, Autodesk BIM solutions improve project understanding throughout the design process. Early analysis of energy consumption and costs helps you better understand building performance and leads to more informed sustainable design decisions. Better visualizations help your team communicate ideas more effectively to gain stakeholder approval and create high-impact marketing visuals to win new business. Model-based design workflows improve collaboration and project coordination—within your own team as well as with external partners, clients, and other project stakeholders.

Connect Design, Fabrication, and Construction

Traditionally, there has been minimal interaction between MEP engineers and fabricators, but that situation is changing. Increasingly, the engineer is deeply involved with the fabricator and contributes design data that drives the production of detailed fabrication drawings as well as the fabrication of ducts, pipes, and even cable trays.

Model-based BIM workflows enable these digital design-to-fabrication workflows, so you can more accurately convey your design intent through to construction. In addition, Autodesk BIM solutions make it easier for you to include manufacturer-specific parts early in the design process, promoting project coordination and improving the connection between design, fabrication, and assembly.

In addition to the Autodesk® Building Design Suite, the Autodesk solution for collaboration and data management provides extended teams with more secure, easier-to-use and faster-to-deploy collaboration and data management solutions, making project information accessible to anyone, anytime, anywhere. Integrated with design and business applications, the Autodesk solutions for collaboration and data management puts MEP and other building professionals in control of business processes and workflows for increased efficiency, improved profitability, and higher quality outcomes.



How to Take Advantage of BIM

Subscription to Autodesk® Building Design Suite Premium and Ultimate Editions offers a broad range of tools to manage all phases of the building design process through the power of BIM with Autodesk® Revit® software and the familiarity of AutoCAD software, as well as cloud-based services powered by Autodesk® 360.

Autodesk 360 delivers a more secure and ubiquitous web-based solution that enables MEP engineers to increase mobility, improve collaboration, and optimize designs.

Building Design Suite provides MEP engineers with the design, visualization, simulation and documentation tools that can help to win more work.

Autodesk Building Design Suite Premium and Ultimate Editions help you:

- Create better buildings with Autodesk Revit for BIM
- Use integrated simulation and analysis to inform design and construction decisions
- Produce compelling visualizations and walk-throughs to gain stakeholder buy-in
- Create consistent, higher-quality construction documentation and as-built models

Revit Architecture and Revit MEP helped to bring the consultant team together to deliver the project in a timely manner on a tight budget. They are very powerful building information modeling (BIM) design tools and in high demand. In fact, for many large commercial and government projects, you can't even sit at the table unless you use BIM.

—Anthony van Kan
CAD Manager
Stephenson&Turner

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